

A new subspecies of *Parnassius staudingeri* A. BANG-HAAS, 1882 from Tian-Shan

(Lepidoptera, Papilionidae)

by

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Summary: *Parnassius staudingeri aladdin* **subspec. nov.** is described from Baubash-Ata mountain range, Tian-Shan (TL: Tian-Shan, Baubash-Ata Mts., north of Arslanbob v.). The new taxon differs from all neighbouring relatives in the strongly reduced black pattern. The butterflies inhabit an unusual ecological niche while the distribution area is fully isolated from the areas of other subspecies.

Резюме: Новый подвид *Parnassius staudingeri aladdin* **subspec. nov.** описан с хребта Баубаш-Ата, Тянь-Шань (типовое место - Тянь-Шань, Баубаш-Ата, севернее п. Арсланбоб). Новый таксон резко отличается от всех соседних подвидов благодаря сильной редукции черного рисунка. Бабочки населяют необычную экологическую нишу, в то время как ареал полностью изолирован от ареалов остальных известных подвидов.

Introduction: The first representatives of *Parnassius staudingeri* A. BANG-HAAS, 1882 were found in Tian-Shan in 2007 and described in 2009 under the name *P. s. vladimir* CHURKIN, 2009. The butterflies fly together with *Parnassius delphi* EVERSMA, 1843; the food plants are *Cysticorydalis fedtschenkoana* for the first species and *Corydalis gortschakovi* for the second one. The habitat of *P. s. vladimir* CHURKIN, 2009 was typical and the same as in Alai or Pamirs - steep stony screes (composed of small stones).

The known united areal of *P. staudingeri* A. B.-H. and *P. delphi* Ev. did not include Moldo-Too range and the northern part of Ferghansky range (together with smaller ranges of the system - Baubash-Ata, Kek-Irim, etc.). (KREUZBERG, 1985; TSHIKOLOVETS, 2005; TOROPOV & ZHDANKO, 2006). During several years we tried to find any of these species in this territory where the alpine habitats are very hardly accessible.

We found *P. delphi* Ev. at the eastern end of Moldo-Too, close to Kara-Kiche Pass; the species used both foodplants mentioned above. Worth to note that in 2010 we collected only 9 specimens (5 were collected on a scree with *Cysticorydalis fedtschenkoana* and 4 in the alpine grassland with *Corydalis gortschakovi* plants), 5 of them had an unusually reduced costal eye on the HW. In 2011 we collected more than 100 butterflies, mainly on the scree - and only 2 of them have a reduced eye; other individuals look similar to the butterflies from Dolon Pass but white forms are unknown. Such differences seem to be important (the species has a 2-year life cycle). During 3 seasons we tried to find any species in the central part of Moldo-Too but only one ♂ of *P. delphi* Ev. was collected.

The investigation of Ferghanian ranges was more successful. A population of *P. staudingeri* A. BANG-HAAS, 1882 was found at the tops of Baubash-Ata Mts. - a giant rock mountain dominating under the Tianshanian part of Ferghana valley. The external characters of the butterflies confirmed the subspecies status of the taxon (moreover, so called "strong subspecies") which can be supplemented with the unusual habitat and foodplant. *Parnassius delphi* Ev. or *P. simonius* STAUDINGER, 1889 were not found.

The HT of the new subspecies is deposited in the Darwin State Museum (Moscow). The paratypes are preserved in the collections of S. CHURKIN and V. KOROSTELEV.

Abbreviations: FW - fore wing, HW - hind wing, HT - holotype, PT - paratype, TL - type locality.

Parnassius staudingeri aladdin **subspec. nov.** (figs: 1-6)

HT ♂, Tian-Shan, Baubash-Ata Mts., NW Arslanbob v., 3400-3500 m, 18.-21.07.2011, S. CHURKIN leg.

PTs: 10 ♂♂, 1 ♀; same data, S. CHURKIN & V. KOROSTELEV leg.; 1 ♀, same loc., 18.07.2007, V. TREMASOV & A. NAUMOV leg.

Description and diagnosis: The new subspecies looks relatively similar to *P. s. kiritshenkoi* AVINOV, 1910 distributed in East Pamirs; the ♂♂ have true whitish ground colour with reduced black pattern. The biology seems to be similar to that of *P. s. hissaricus* EISNER, 1968 from the southern slopes of Ghissar. However, it belongs to the *infernalis*-complex (or may represent a separate line in the evolution of the species), and an analysis is done, comparing it with the neighbouring taxa.

♂: FW length 28 mm in the HT, 27-30 mm in the PTs (1 ♂ - 25 mm); the butterfly is statistically but obviously smaller than related taxa.

The FW shape is different from that typical for all 3 subspecies distributed in Alai and Tian-Shan: the apex is not so pronounced while the anal angle looks cut - so that the shape as a whole is shorter and narrower, the mounted butterflies look somewhat square-shaped.

The ground colour is whitish, more whitish than in *P. s. vladimir* CHURKIN or *P. s. illustris* GRUM-GRSHIMAILO, 1888 and without dark suffusion, in contrast to *P. s. infernalis* STAUDINGER, 1886.

FW: the semitransparent marginal band is very narrow, thinner comparing even to that of *P. s. vladimir* CHURKIN. The submarginal band is also very narrow, often represented by a series of non-joined triangular spots; the white M2-M3 spot is removed towards the discal area as well as the blackish M2-M3 spot (a typical specific character of *staudingeri* sensu lato). The postdiscal band is not complete, M3-Cu1 and Cu1-Cu2 spots are absent, as a rule, while the Cu2-2A spot is normally developed, usually looking like a blackish oval rotated clockwise. The inner discal spot is very thin and short while the external discal spot is typical, just not so wide as in other subspecies.

HW: The marginal band is reduced, narrow and short; the submarginal line is totally absent or composed of several thin dark linear spots; the black submarginal 2A-Cu2 spots are very small, one of them is often totally absent. The eyes (ocelli) are small, pale, not so bright as in other taxa, often with an indistinct orange hue. As a rule, the blackish line joining the eyes is absent or considerably reduced. The blackish basal suffusion of the HW is variable - sometimes it covers only the narrow anal margin of the HW, but sometimes the cell is fully dusted.

The variation is not great, but 2 ♂♂ are definitely more similar to *P. s. vladimir* CHURKIN, having the postdiscal band more developed (the M3-Cu1 and Cu1-Cu2 spots are clear) and the eyes on the HW moderately joined by a blackish line - and even the wings shape is typical for the species; the last character is very noticeable. Two more ♂♂ show intermediate features.

♀: FW length 30 mm and 31 mm. Similar to the ♂♂, the blackish pattern is more developed but not so dense and contrasting. The inner discal spot on the FW is very small, one ♀ has this spot practically totally reduced. At the same time, the postdiscal band is widened, the M3-Cu1-Cu2 spots are not fully absent but visible as a non-dense suffusion. The HW reddish eyes are larger than in the

♂♂, the blackish joining line is partly expressed - while the marginal and submarginal pattern is more reduced compared to the ♂♂. One ♀ has a not large but distinct anal reddish spot - this is an absolutely unique character because the absence of this spot is a specific feature of *P. staudingeri* A. B.-H. There is no doubt that this ♀ belongs to the last species - and it is not known if this character is typical for the new subspecies or represents an aberration (other pattern in both ♀♀ is very similar).

The sphragis seems to be typical for the species, small and not convex (in opposite *P. delphiuss* Ev.).

Biology: Butterflies do not fly on the screes (where *Cysticorydalis fedtschenkoana* is absent), but at vertical and partially destroyed rocks with *Corydalis onobrychis* plants growing in the cracks. Such biology is known for *P. s. hissaricus* EISNER (distributed at the southern slopes of Ghissar Range) and is absolutely unusual for the *infernalis*-group. The identification of *Corydalis* is provisional and based on the photos because the collected plants were lost.

Distribution area and taxonomic notes: Known only from the TL. Presumably, other populations may be found at the tops of Kek-Irim or northern edges of Fergansky range. As a whole, only a few places have the altitudes and habitats suitable for the new taxon. The long median part of Fergansky range does not have such habitats - so, the area of *P. s. aladdin* **subspec. nov.** is fully isolated from the known area of all other subspecies. Moreover, the southern part of Fergansky range is populated by the darkest *P. s. infernalis* STAUDINGER, 1886 (CHURKIN, 2009), which looks maximally different from the new subspecies. Contacts with *P. s. vladimir* CHURKIN (Dzhaman-Too) seem to be impossible - but exactly this taxon presents the true relative of the new one, according to the external characters and genitalia. Finally, we suppose that the population inhabiting Baubash-Ata represents a deeply isolated taxon which is rapidly changing right now, more and more moving away from relatives because of the changed niche and the absence of genetic exchange.

Etymology: Aladdin - a fabulous hero.

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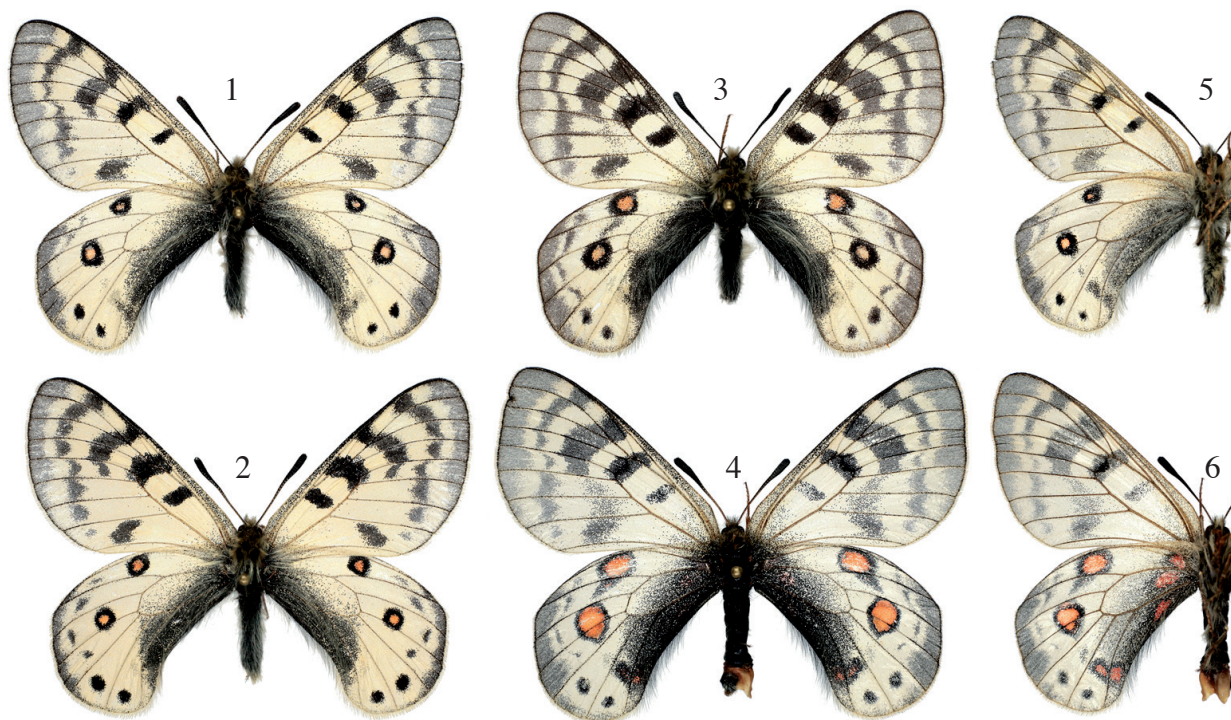
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1-6: *Parnassius staudingeri aladdin* **subspec. nov.** (1, 5) Tian-Shan, Baubash-Ata Mts., NW Arslanbob v., 3400-3500 m, 18.-21.07.2011, S. CHURKIN leg., HT ♂, (2) same data as 1, V. KOROSTELEV leg., PT ♂, (3) same data as 1, V. KOROSTELEV leg., PT ♂, (4, 6) same data as 1, V. KOROSTELEV leg., PT ♀.